

Oct. 16, 1934.

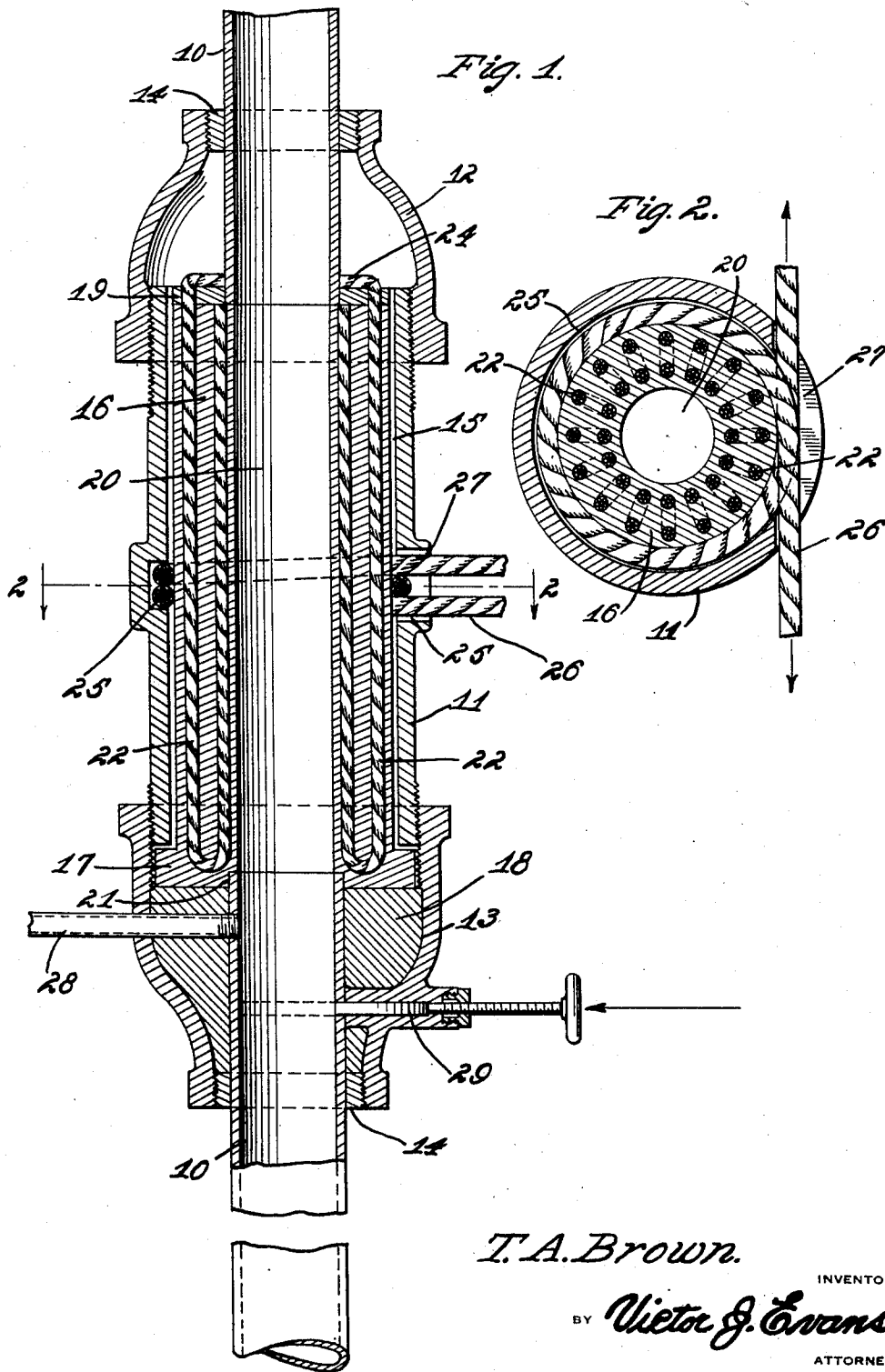
T. A. BROWN

1,977,504

CABLE VALVE FOR OIL WELLS

Filed Oct. 15, 1930

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CABLE VALVE FOR OIL WELLS

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Fig. 3.

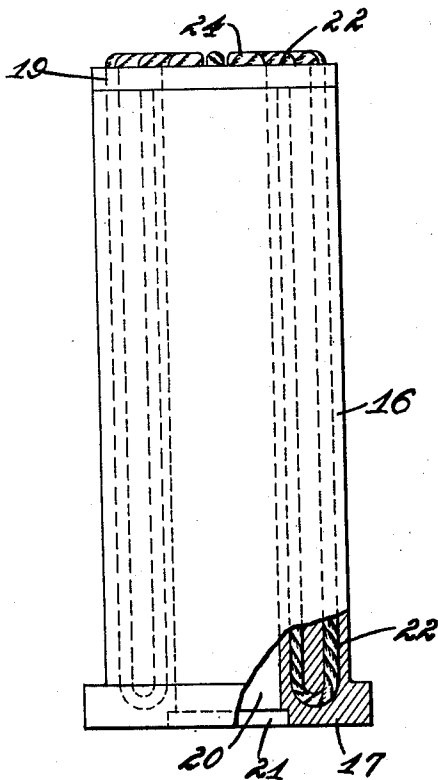


Fig. 5.

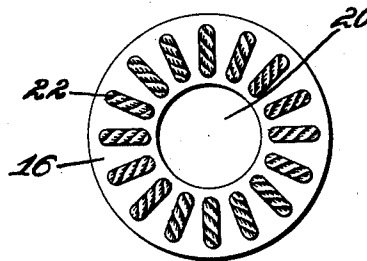


Fig. 6.

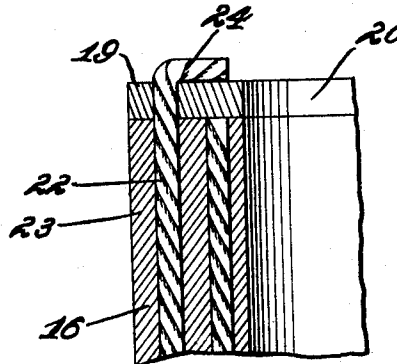
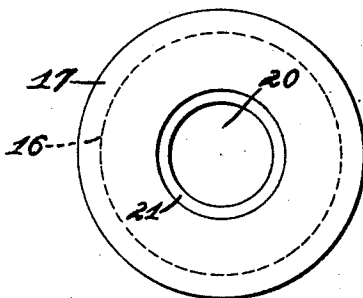


Fig. 4.



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UNITED STATES PATENT OFFICE

1,977,504

CABLE VALVE FOR OIL WELLS

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Application October 15, 1930, Serial No. 488,927

3 Claims. (Cl. 251—5)

This invention relates to well drilling apparatus and has for an object the provision of means for closing the passage through a well casing in the event of fire, the closing means also serving to grip tools of any character within the casing sufficiently close to shut off the well, or to shut off the well with no tools or other objects in the casing.

Another object of the invention is to provide means for the release of pressure when the casing is closed, and to provide for the removal of tools.

With the above and other objects in view, the invention further includes the following novel features and details of construction, to be hereinafter more fully described, illustrated in the accompanying drawings and pointed out in the appended claims.

In the drawings:—

Figure 1 is a vertical sectional view through a portion of a well casing with the invention applied.

Figure 2 is a section on the line 2—2 of Figure 1.

Figure 3 is an elevation of the compressible member with parts shown in section.

Figure 4 is a bottom view of the same.

Figure 5 is a top plan view.

Figure 6 is an enlarged fragmentary sectional view.

Referring to the drawings in detail wherein like characters of reference denote corresponding parts, the reference character 10 indicates a well casing which is interrupted at the top or adjacent the top with the ends adjacent the interrupted portion connected by an auxiliary casing 11.

The casing 11 is detachably secured to the well casing and for this purpose the invention provides reducer members 12 and 13. These members 12 and 13 are connected to opposite ends of the auxiliary casing 11 and are also connected to collars 14 carried by the casing 10.

The auxiliary casing 11 is of relatively large diameter and provides a chamber 15 whose opposite ends are in communication with the casing 10. This chamber 15 accommodates a flexible member 16 whose lower flanged end 17 is seated within the reducer 13. The reducer 13 is provided with a lead or other suitable filling 18. The opposite end of the member 16 is provided with a cap 19 and each end of the passage 20 which extends through said member is counterbored as at 21 to receive the adjacent ends of the casing 10. A continuous passage is thus provided through the casing and the member 16.

The member 16 is formed of a number of spaced parallel lengths of cable 22, arranged substantially as shown in the drawings. A plurality of

lengths of cables are employed, and each length is bent upon itself to provide spaced parallel strands extending in a direction from the opening of the core 20 to the periphery of the core. These cable lengths are embedded in a lead binder 23 which is of a flexible character, and as the cable lengths 22 are likewise flexible, the walls of the member 16 may be flexed. One of the ends of the cable lengths is bent over as shown at 24 and secured to the cap 19.

The auxiliary casing 11 is provided with an annular recess 25 and located within this recess and extending around the member 16 is a cable 26. The ends of this cable extend through an opening 27 provided in the casing 11 and these ends may extend some distance from the well for pulling, or they may be pulled by the drilling power at the well. If desired, both methods may be utilized.

A pull upon the cable 26 as indicated by the arrows in Figure 2 of the drawings, will contract and flex the flexible member 16 so as to close the passage therethrough. Tools or other objects of any character within the casing will be gripped, and flow through the well will be cut off. Pressure within the well may be relieved by a pipe 28 which communicates with the casing 10. A gate valve 29 is provided in the casing through the reducer 13, so that the well may be entirely shut off and tools removed.

When the cable 26 is tightened to close the well, the upper end of the flexible member 16 will be pulled inward and downward, while that portion of the flexible member adjacent the cable 26 acts to shut off pressure from the well.

To release a tool or bit, slack the cable slightly and draw the tools upward, the gate valve 29 having been previously closed.

The invention is susceptible of various changes in its form, proportions and minor details of construction and the right is herein reserved to make such changes as properly fall within the scope of the appended claims.

Having described the invention what is claimed is:—

1. A casing valve comprising a sectional housing adapted to be connected to a casing, a flexible core in said housing including spaced lengths of cables with one end of each length of cable connected exteriorly of the core, and means for flexing the walls of the core to shut off the flow there-through.

2. A casing valve comprising a sectional housing adapted to be connected to a casing, a flexible core in one section of the housing and including

spaced lengths of cables, and a separate cable disposed between the last mentioned section and the core for flexing the walls of the core to shut off the flow therethrough.

- 5 3. A casing valve comprising a sectional housing adapted to be connected to a casing and one of said sections having an annular recess opening out through one side thereof, a flexible core

within said section, and means disposed within said annular recess and completely encircling the core for flexing the walls of the core to shut off the flow therethrough, said last mentioned means having portions thereof extending through the opening of the housing and in opposite directions with respect to each other.

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15	90
20	95
25	100
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45	120
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65	140
70	145
75	150